ON LOW REGULARITY SOLUTIONS OF THE BENJAMIN-ONO EQUATION ON THE TORUS

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In this talk I will discuss the well-posedness of the Benjamin-Ono (BO) equation on the torus in the Sobolev spaces H^{-s} for any $0 \leq s < 1/2$. The result is sharp in the sense that the BO flow map does not extend continuously to H^{-s} for $s > 1/2$. Note that the critical Sobolev exponent for the Benjamin-Ono equation is $-1/2$. Our methods also allow to prove that the constructed solutions are almost periodic in time and that their orbits are relatively compact. This is joint work with Patrick Gérard and Peter Topalov.